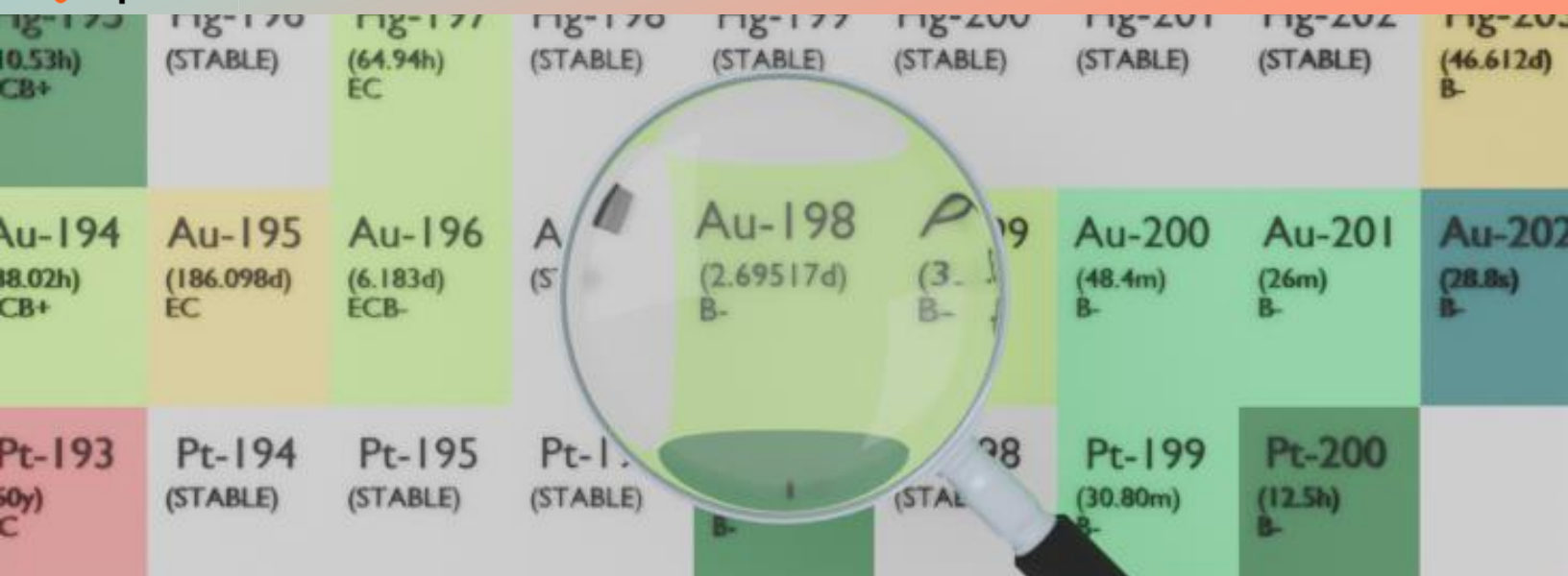




# GOLD-198

## SUMMARY DATA

### GENERAL

#### CLASSIFICATION

Isotope: Au-198  
Atomic number (Z): 79  
Mass number (A): 198  
Neutron number (N): 119

#### RADIOACTIVE DECAY

Decay modes:  $\beta^-$   
Half-life: 2.695 [d]  
Decay constant:  $2.9766\text{e-}06$  [1/s]  
Daughters: Hg-198 (100.0%)  
Radioactive daughters: None

#### DOSIMETRIC CONSTANTS

Mean alpha energy: 0.0 [MeV]  
Mean electron energy: 0.3277 [MeV]  
Mean photon energy: 0.40293 [MeV]  
Air kerma rate constant,  $\Gamma_{10}$ :  $1.544\text{e-}17$  [ $\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$ ]  
Air kerma coefficient,  $K_{\text{air}}$ :  $1.544\text{e-}17$  [ $\text{Gy} \cdot \text{m}^2/\text{Bq} \cdot \text{s}$ ]  
Equilibrium dose constant for weakly-penetrating radiations ( $\alpha$  and/or electrons),  $\Delta_{\text{wp}}$ :  $5.250\text{e-}14$  [ $\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$ ]  
Equilibrium dose constant for alphas,  $\Delta_{\alpha}$ :  $0.000\text{e+}00$  [ $\text{Gy} \cdot \text{kg}/\text{Bq} \cdot \text{s}$ ]

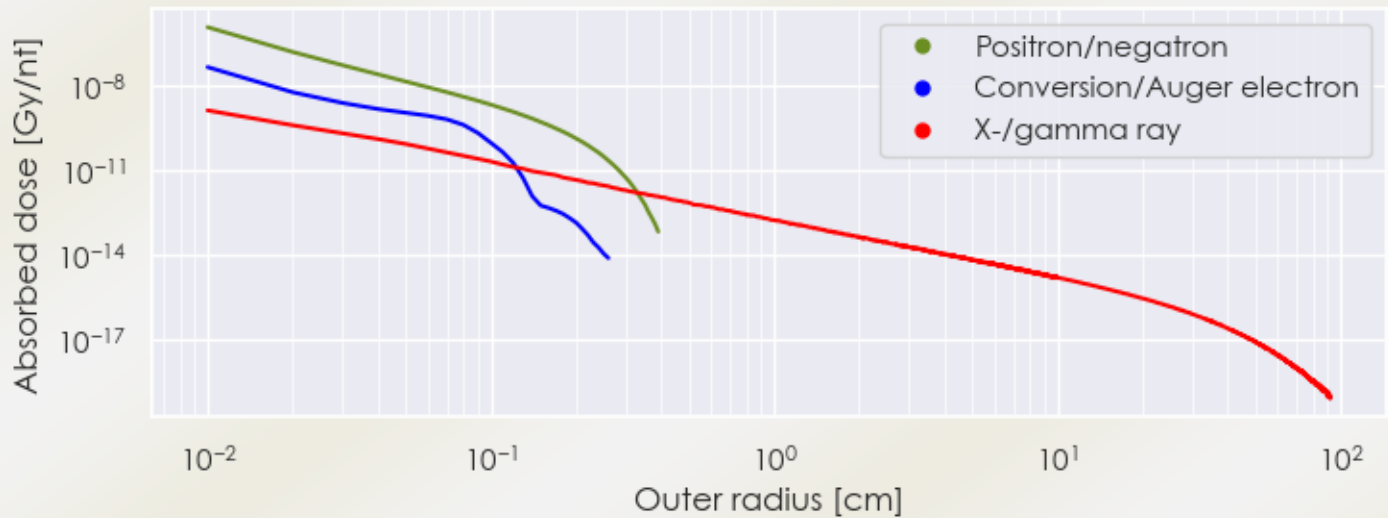
Equilibrium dose constant for betas/electrons,  $\Delta_{\beta,\beta^+,e^-}$ :  $5.250 \times 10^{-14}$  [Gy·kg/Bq·s]

Equilibrium dose constant for photons,  $\Delta_p$ :  $6.456 \times 10^{-14}$  [Gy·kg/Bq·s]

### DOSE POINT KERNELS (PLOT)

Dose point kernel source: **Graves, et al. Medical Physics. 2019 Nov.; 46(11):5284-5293.**

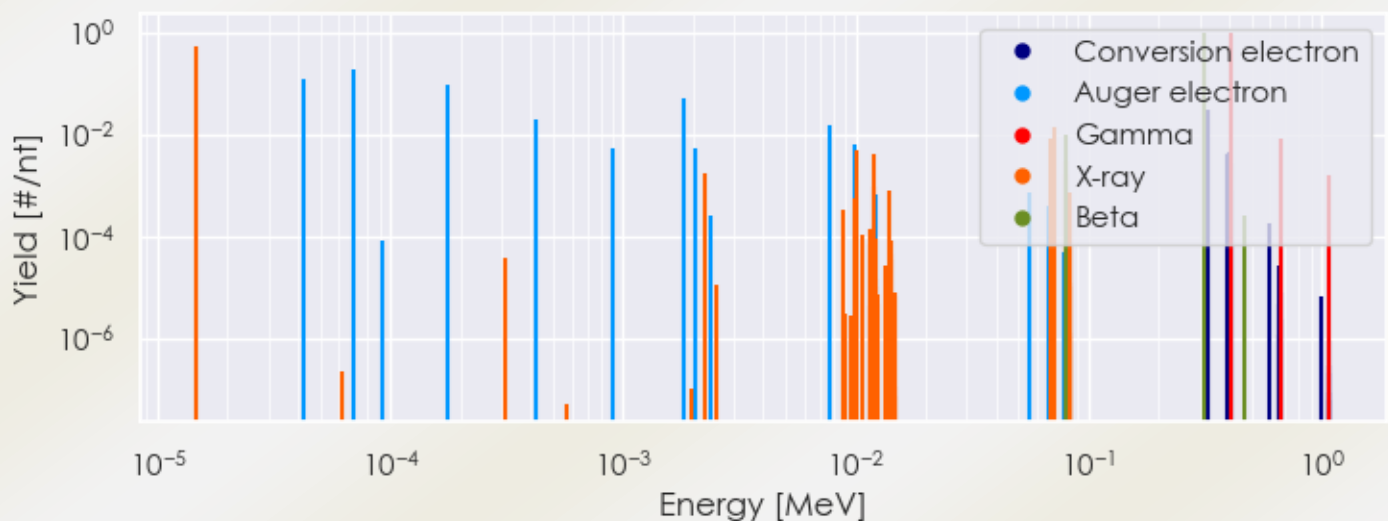
Note: Bins are spaced every 0.1 mm until a radius of 10 cm, and every 1 mm until a radius of 2 m.



Download tabulated dose point kernel file here: [www.mirdsoft.org/products/MIRDspecs/Au-198 DPK.csv](http://www.mirdsoft.org/products/MIRDspecs/Au-198 DPK.csv)

### SUMMARY SPECTRA (PLOT)

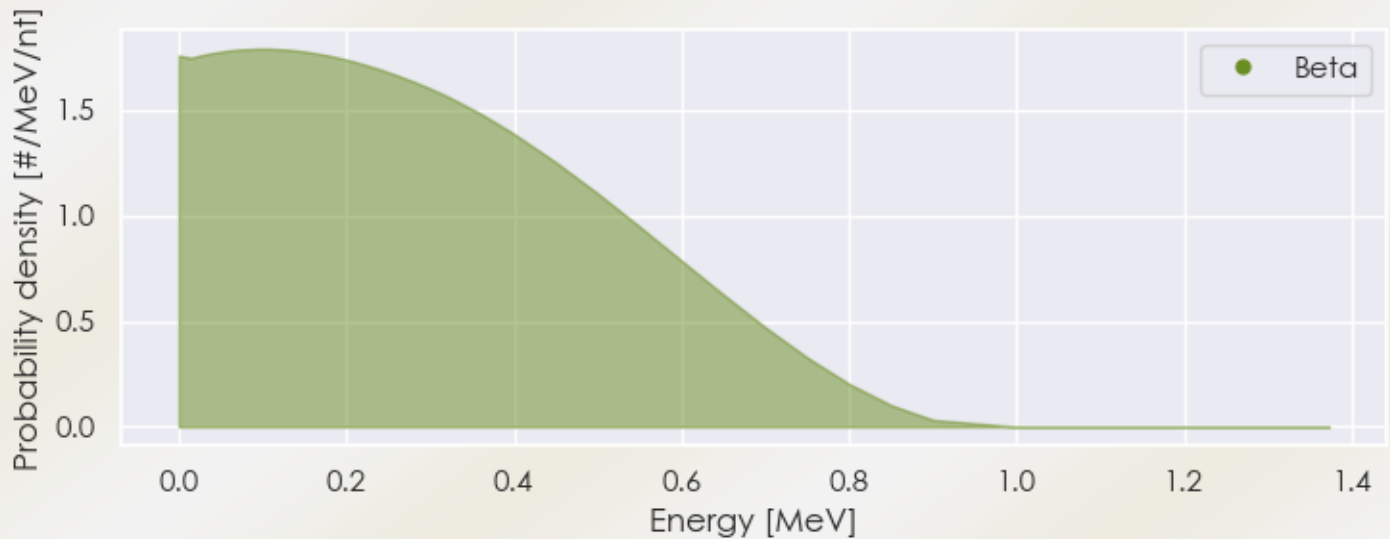
Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Au-198 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Au-198 Summary Spectrum.csv)

## BETA SPECTRA (PLOT)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**



Download tabulated beta spectra file here: [www.mirdsoft.org/products/MIRDspecs/Au-198 Beta Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Au-198 Beta Spectrum.csv)

## TABULATED DATA

### SUMMARY SPECTRA (TABLE)

Spectra source: **ICRP Publication 107: Nuclear Decay Data for Dosimetric Calculations. Ann. ICRP 2008, 38 (3).**

Note: Radiations with yield < 0.01 are excluded from the table, but are available in the linked \*.csv data.

Download tabulated summary spectra file here: [www.mirdsoft.org/products/MIRDspecs/Au-198 Summary Spectrum.csv](http://www.mirdsoft.org/products/MIRDspecs/Au-198 Summary Spectrum.csv)

| Energy [MeV] | Yield [# / nt] if > 0.01 | Radiation type |
|--------------|--------------------------|----------------|
| 1.47062e-05  | 5.426e-01                | X-ray          |
| 7.10661e-02  | 1.383e-02                | X-ray          |
| 4.11802e-01  | 9.558e-01                | Gamma          |
| 3.14498e-01  | 9.899e-01                | Beta           |
| 4.20519e-05  | 1.228e-01                | Auger electron |
| 6.99313e-05  | 1.798e-01                | Auger electron |
| 1.74854e-04  | 9.476e-02                | Auger electron |
| 4.18312e-04  | 1.993e-02                | Auger electron |
| 1.81021e-03  | 4.865e-02                | Auger electron |
| 7.71016e-03  | 1.472e-02                | Auger electron |

3.28449e-01

2.888e-02

[Conversion electron](#)

## USEFUL LINKS

Isotope decay characteristics are periodically updated as better measurements can be made - changes that may not be reflected on this page. Please see useful links:

National Nuclear Data Center (NNDC): <https://www.nndc.bnl.gov/nudat3/mird/>

International Atomic Energy Agency (IAEA) Livechart: <https://www-nds.iaea.org/relnsd/vcharthtml/VChartHTML.html>

## REFERENCE LINKS

ICRP Report 107: <https://www.icrp.org/publication.asp?id=ICRP%20Publication%20107>

Graves et al. Dose Point Kernels: <https://doi.org/10.1002/mp.13789>

MIRD Decay Schemes 2nd Edition: [https://sites.snmmi.org/SNMML-MAIN/iCore/Store/StoreLayouts/Item\\_Detail.aspx?iProductCode=0-932004-80-6](https://sites.snmmi.org/SNMML-MAIN/iCore/Store/StoreLayouts/Item_Detail.aspx?iProductCode=0-932004-80-6)